analysis with the involvement of three different specialists.

8.2.1 The cremations (3801-3805)

F Boghi and C Roberts

The cremations considered in the present analysis (3801), (3802), (3803), (3804), (3805) were recovered in 1992 (Table 8.1).

Methodology

Cremations (3801), (3802), (3803), (3804) and (3805) were wet sieved through a stack of 4mm, 2.8mm and 1mm mesh-sized sieves to maximise recovery and to offer a measure of the degree of fragmentation (McKinley 1989). All fragments larger than 10 mm were manually separated (Tables 8.2 – 8.6).

Size of cremation:
The amount of bone from each cremation is given in grams, since weight is more informative than the volume or the number of fragments (McKinley 1994). Although soil had infiltrated into the cancellous portion of bone, soaking was avoided to minimise further fragmentation of bone fragments. For this reason, the bone may contain a varying quantity of soil thereby increasing its overall weight.

Fragmentation:
The degree of fragmentation is indicated by the weight of bone at each mesh size and as a percentage of the total weight (McKinley 1989). The maximum fragment size is recorded for each cremation.

Surface changes:
Surface changes (colour, warping, cracking, texture, weathering) were recorded according to Buikstra and Ubelaker (1994). The pattern of heat-induced bone change in colour and texture can be exploited to infer the technological aspects of the ritual, the condition of the body at the time when the cremation process took place and the nature of post-depositional disturbance (Shipman *et al.* 1984).

Identification:
The differentiation of non-human from human bone was based on morphology and on the thickness and density of the cortex. The weight of identified human bone was compared with the weight and percentage of the unidentified portion. Human bones were grouped into types and recorded on the inventory recording form for commingled and isolated remains (Buikstra and Ubelaker 1994). Bird bones were identified according to Cohen and Serjeantson (1986) and sexed according to Driver (1982).

MNI (minimum number of individuals):
The minimum number of individuals was established on the basis of the duplication of bone elements and of major developmental differences (Buikstra and Ubelaker 1994).

Determination of sex:
The chosen criteria for sex determination included skull and pelvic morphology as in Buikstra and Ubelaker (1994). The material was classified as follows:

Female	F
Probably female	F?
Possibly female	F??
Indeterminate	?
Possibly male	M??
Probably male	M?
Male	M

Age at death:
Age at death was determined as in Buikstra and Ubelaker (1994) and, specifically, according to:

1. Stage of cranial suture fusion
2. Rate of dental attrition
3. Degenerative changes of the vertebral bodies (Ubelaker 1989)
4. Stage of epiphyseal union

These were the only useable criteria based on the surviving human remains. Ideally, the use of a wider range of methods would be preferred since it can increase accuracy and counteract the fact that macroscopical ageing methods perform differently in different individuals and populations. The current methods for estimating age at death in skeletal material correlate age-progressive morphological changes in the skeleton with chronological age. Their reliability diminishes with increasing age since morphological changes are more difficult to interpret beyond 40 years of age. The material was classified according to the following age categories:

1. young adults (17-25 years)
2. middle adults (26-45 years)
3. old adults (46+ years)
4. adults

Although the tendency for over-ageing of young adults and under-ageing of old individuals can affect even such a generic division, the use of broad age classes is thought to be compatible with most population analyses.

Phase	Crem	Human bone	MNI	Sex	Age	Pathology	Non-human bone	Artefacts	Burial
3	3801	153.7g	1	?	Adult? (size of bone elements)	-	-	-	Urned (within one vessel)
3	3802	1166.7g	1	?	Young Adult (epiphyseal union)		Unburnt bone from one domestic fowl; 27g	Fe/nails 19.4g minimum no 10 (from wooden box?)	Unurned (within bowl shaped cut) with accompanying vessels
2	3803	260.8g	1	?	Old? Adult (dental wear)	Dental disease		-	Unurned (in shallow cut)
2	3804	1116.8g	1	?	Middle Adult (cranial suture closure)	Arthritic changes in the spine	Unburnt bone from 1 domestic fowl; 22g	1 Fe/nail, 1 frg. of small pottery vessel	Unurned with accompanying vessels
2	3805	52.0g	1	?	Adult? (size of bone elements)	-	-	-	Unurned (loose within matrix; cut not found)

Table 8.1 Summary table: the cremations from Kempston

Robusticity and body size:
At present stature estimations from cremated remains are not considered accurate (McKinley 1994), observations were therefore limited to considerations of body size and robusticity. Body size refers specifically to body dimensions and is assessed preferably from long bones but also from articular surfaces or other bones. Robusticity, an individual's degree of muscularity, is independent of body size and can be assessed from the sites of muscular and tendinous attachments. The pattern of muscular development can be exploited to infer the movements that were mostly performed and, therefore, to a certain extent, activity and occupation.

Pathological changes:
A microscope and hard lens were used in the identification of pathological changes. Pathological conditions were classified according to Buikstra and Ubelaker (1994).

The Cremations

Bone	Side	Segment	Com	Wt(g)	Age	Sex
Skull	-	-	3	9.2	?	?
Ulna	?	M1/3	3	2.9	?	
Femur	?	M1/3	3	1.0	?	?
Limbs	?	M1/3	3	37.4	?	?
Unidentified (> 10mm.)	-			29.5	-	
Unidentified (> 4 mm.)	-			50.5	-	
Unidentified (>2.8 mm.)	-			23.6	-	

Table 8.2 Cremation C3801 (com = completeness)

Bone	Side	Segment	Com	Wt(g)	Age	Sex
Skull		-	3	105.7	y-ad	?
Mandible	-	Condyle	2	0.9	?	?
Scapulae	R, L	2 frgs. Glenoid fossa	3	16.3	?	?
Vertebrae	-		3	42.5	?	?
Ribs		?	3	39.5	?	?
Humerus		D1/3, P1/3	3	28.2	y-ad	?
Ulna/radius		M1/3	3	18.8	?	?
Pelvis		L	3	41.5	?	?
Sacrum		Coccyx	3	1.7	?	?
Patella		L	2	5.5	?	?
Calcaneus	?		2	27.5	?	?
Limbs (unid articular surfaces)		?	3	53.2	?	?
Limbs (unid shafts)	?	M1/3	3	20.00	?	?
Unidentified frgs (> 10mm)			-	424.9	?	?
Unidentified frgs (> 4 mm)			-	73.0	?	?
Non-human bone				27.0		

Table 8.3 Cremation C3802 (com = completeness)

Bone	Side	Segment	Com	Wt(g)	Age	Sex
Skull			3	128.2		?
Teeth (root of 2nd upper premolar)	L		1	0.9	Old? adult	?
Articular surface			3	2.5	?	?
Head of unid. Phalanx	-		2	1.0	adult	?
Metacarpals/ metatarsals		M1/3	3	1.0	?	
Unidentified (>10mm)			-	5.5		?
Unidentified (> 4 mm.)			-	128.2		?
Unidentified (>2.8 mm.)			-	20.0		?

Table 8.4 Cremation C3803 (com = completeness)

Bone	Side	Segment	Com	Wt(g)	Age	Sex
Skull			3	169.6	Mid adult	?
Zygomatic bone	?		3	2.5		?
Glabella (?)			3	2.0		?
Vertebrae (unid)-		Bodies		14.2	Mid adult	?
Ribs	?		3	15.7		?
Ulna	?	D1/3, M1/3	3	6.1	adult	?
Femur	?	P1/3 (spiral line, linea aspera)	3	22.0		?
Limbs (unid)	?		3	234.0		?
Carpals		Capitate	3	2.5		?
Metacarpals/ Metatarsals		Shafts	3	1.2		? ?
Unidentified (> 10mm.)			-	313.0		?
Unidentified (> 4 mm.)			-	290.5		?
Unidentified (>2.8 mm.)			-	75.5		?
Non-human bone				22.0		?

Table 8.5 ***Cremation C3804 (com = completeness)***

Bone	Side	Segment	Com	Wt (g)	Age	Sex
Skull	-	-	3	2.6	?	?
Limb bones	?	M1/3	3	29.5	?	?
Navicular	?		3	1.0	?	?
Extraspinal articular surfaces			3	4.0	? ?	? ?
Unidentified(> 10mm.)		-	-	2.4	?	?
Unidentified(> 4 mm.)		-	-	8.3	?	?
Unidentified(>2.8 mm.)		-	-	4.2	?	?

Table 8.6 Cremation C3805 (com = completeness)

Key for tables 8.2 to 8.6: (Cremations 3801 -3805)
Completeness
1 = > 75%
2 = 25 -75%
3 = < 25%

Cremation	Sex	Age	Total (g)	>10 mm	%	4 mm	%	Size (cm)	%	Max frg
3801	?	Adult?	153.7	79.6	52	50.5	33	2.8	15	3.7x2.0
3802	?	Young adult	1166.7	1093.7	94	73.0	6	-	-	4.8x3.7
3803	?	Old? adult	260.8	112.6	43	128.2	49	20.0	8	5.0x1.9
3804	?	Middle adult	1168.8	802.8	69	290.5	25	75.5	6	7.0x1.5
3805	?	Adult?	52.0	39.5	76	8.3	16	4.2	8	3.0x1.4

Table 8.7 ***Bone weight according to sieve category***

Cremation	Sex	Age	Total (g)	Total id (g)	% id	Total unid (g)	%
3801	?	Adult?	153.7	50.1	33	153.7	67
3802	?	Young adult	1166.7	586.5	50	580.2	50
3803	?	Old? adult	260.8	62.5	24	198.3	76
3804	?	Middle adult	1168.8	489.8	42	679.0	58
3805	?	Adult?	52.0	37.1	71	14.9	29
Total	-	-	2800	1226	-	1626.1	-

Table 8.8 ***Identified and unidentified bone***

The Human Bone Assemblage

Size of cremation:
The total amount of human bone recovered varies considerably in these cremations, ranging from 52.0g in C3805 to 1168.8g in C3804 with an average of 560.4g (Table 8.8).

Fragmentation:
The bone appeared to be extensively fragmented. The vast majority of fragments were not much larger than 10-20mm and the average maximum fragment size was approximately 5cm (Table 8.7).

Surface changes:
All cremations exhibited some variation in colour according to anatomical part. Bone elements such as articular surfaces which are shielded from the heat by soft tissues were generally tan in colour. There was extensive evidence of cracking both longitudinally and transversely and several bones are warped. In C3803, C3804, C3805 the bone colour varied from tan/white to bluish-grey. The degree of variation was considerably higher in cremations C3801 and C3802. In cremation C3802 some bone elements, such as the pelvis, were entirely blue/grey while many long bones had a blue medullary cavity with a white or tan cortical surface and

the calcaneus is black C3802. The pattern of surface changes is given in tables 8.11 - 8.15.

Identification:
An average 44% (range 24%-71%) of the total bone recovered could be identified on the basis of its morphology. A large portion of fragments from all cremations (average 56%) remained unidentified mainly because of the small size of the fragments and because of the lack of distinguishing features on certain anatomical parts (Table 8.8). No parts of cremated non-human bone were discerned. The unidentified portion of bone may contain a certain amount of non-human bone. The unburnt portion of non-human bone could be separated without difficulty on the basis of morphology, colour and cortical thickness. Both axial and appendicular elements were represented in all the cremations. As expected, the appendicular portion was generally larger than the axial part (Table 8.9). The axial and appendicular part of a skeleton should be respectively 38.8% and 62.2% of the total weight (McKinley 1994) The catalogue of bone present is given in tables 8.11 - 8.15.

MNI (Minimum Number of Individuals):
No evidence of duplication of skeletal parts was noticed seemingly indicating that each cremation contained the remains of a minimum of one individual.

Crem	Sex	Age	Wt(g)	Axial	% id	App	% id
3801	?	Ad?	50.1	9.2	18%	40.9	82%
3802	?	y-ad	586.5	189.4	32%	397.1	68%
3803	?	o?-ad	62.5	22.0	35%	40.5	65%
3804	?	m-ad	489.8	204	42%	679.0	58%
3805	?	ad?	37.1	2.6	7%	49.4	93%
Total			2802	427.2		1206.9	

Table 8.9 Anatomical representation of bones (App: Appendicular)

Determination of sex:
The human skeleton provides several sexually dimorphic features that can be exploited in sex determination. These are morphological and metrical differences in the pelvis, skull and long bones. Methods for sex determination in skeletal material rely on the difference between male and female in body size, proportions, robusticity, development and differential role in reproduction. Unfortunately, no single feature was present or was sufficiently preserved for analysis; consequently, the remains from all the cremations were classified as indeterminate.

Crem	MNI	Sex	Age	Body size	Rob	Pathology
3801	1	?	Ad?	?	?	-
3802	1	?	y-ad	?	?	-
3803	1	?	o? ad	?	?	AMTL
3804	1	?	mid ad	large	robust	arthritis of the spine
3805	1	?	ad?	?	?	

Table 8.10 Biological anthropology

Key- AMTL: ante mortem tooth loss; Rob: robusticity

Element	Colour	Texture	Warp	Shielded surface
Skull	BG/W	Rough	N	N
Limbs	BG/W/T	Rough	N	Y/N
Articular surfaces	T	Rough	N	Y
Unid	BG/W/T	Rough	N	?

Table 8.11 Taphonomic changes:C3801

Element	Colour	Texture	Warp	Shielded surface
Skull	T	Rough	Y	N
Mandible	T	Rough	N	Y
Vertebrae	T	Rough	Y	Y/N
Ribs	T	Rough	N	N
Sacrum	T	Rough	N	N
Pelvis	T/B/BG	Rough	Y	Y
Scapulae	T/W	Rough	Y	Y/N
Humerus	T	Rough	N	Y
Ulna/radius	W/T	Rough	Y	N
Patella	T	Rough	N	N
Calcaneus	B/dk grey	Rough	N	N
Metatarsals		Rough	N	N
Limbs (articular surfaces)	T	Rough	N	Y
Metatarsals/metacarpals W		Rough	N	N
Limbs (unid)	BG/W/T	Rough	-	-
Unid (10mm.)	T		-	-
Non-human bone	Natural Not burnt			

Table 8.12 Taphonomic changes: C3802

Element	Colour	Texture	Warp	Shielded surface
Skull	T/BG	Rough	N	N
Limbs	W/BG (medullary cavity)	Rough	N	Y/N
Articular surfaces	B	Rough	N	Y
Metatarsals/ metacarpals	BG/T	Rough	Y	N
Teeth	W	Rough	N	N
Unid (>10mm)	W/B/BG	Rough	N	Y/N

Table 8.13 Taphonomic changes: C3803

Element	Colour	Texture	Warp	Shielded surface
Skull	T/W	Rough	N	N
Vertebrae	T	Rough	N	Y/N
Ribs	T	Rough	N	N
Articular surfaces	T	Rough	N	Y/N
Carpals	T	Rough	N	Y
Limbs (unidentified)	T	Rough	Y	Y/N
Tibia	T	Rough	N	N
Femur	T	Rough	N	Y
Ulna	T	Rough	N	N
Metacarpals/metatarsals	T	Rough	Y	N
Non-human bone	Natural, not burnt			

Table 8.14 Taphonomic changes: C3804

Element	Colour	Texture	Warp	Shielded surface
Skull	White/Blue/Grey	Rough	N	N
Extraspinal articular	Tan	Rough	N	Y
Surfaces		Rough	N	Y/N
Limbs (unid)	White/Blue Grey	Rough	N	N
Tarsals (navicular)	Dark Grey	Rough	N	?
Unid frgs.	Tan/Blue-Grey	Rough	N	?

Table 8.15 Taphonomic changes: C3805

Biological Anthropology

Age at death:
Age at death is determined in skeletal material according to developmental changes and degenerative changes. An individual can be classified as adult when most epiphyses are fused and all permanent teeth have erupted. Other age-progressive morphological changes in the skeleton aid the assessment of age at death during adulthood. The estimation of age at death was difficult in most individuals since most ageing features were unavailable or fragmentary. Age at death could not be assessed beyond the category of probably adult in cremations C3801 and C3805. This is because the epiphyses of the long bones could not be observed. However, given the large size of the fragments, it is unlikely that they represent the remains of infants or children. Age at death in C3802, C3803 and C3804 was determined according to the rate of cranial suture closure, the stage of epiphyseal union and degree of degenerative changes in the spine, these being the only criteria available The individual from cremation C3802 was aged as young adult on the basis of the rate of epiphyseal union of the humeral head. C3803 is possibly an old adult on the basis of one dental crown worn to the root as found in old individuals. However, trauma or diet can affect the rate of dental wear. Individual C3804 was probably a middle aged adult at the time of death according to the rate of cranial suture closure and on the basis of some degenerative changes in the spine. However, the accuracy of the rate of cranial suture closure for estimating age at death is flawed because of a large rate of individual variability. Moreover, this method could not be fully applied due to the incomplete and fragmentary nature of the skull. Vertebral degenerative changes in the spine, although progressing with advancing age, can also vary considerably between individuals. A summary of the results is given in Table 8.10.

Robusticity and body size:
The examination of the osteological evidence of C3804 was suggestive of a robust individual. Two femur fragments showed a very well developed linea aspera and spiral line indicating good development of the muscles at the back of the thigh (adductor magnus and vastus medialis). Little evidence was available for establishing robusticity and body size in C3801, C3802 and C3805 since most sites of muscular attachment were fragmentary or missing.

Pathological changes:
Some arthritic changes (lipping, microporosity, osteophytes) were noticed on the vertebrae of C3804. Four unidentified fragments of vertebral body (out of a total of six) had evidence of microporosity (grade 1) and marginal lipping (grade 2). Severity was assessed as in Buikstra and Ubelaker (1994). In C3803 the 2nd upper left premolar was worn to the root. Since the top of the root appeared smooth, the loss of the tooth crown is hardly a consequence of the cremation process and may have been caused by trauma or by a severe rate of age and/or diet related dental attrition. No pathological conditions were found in C3801, C3802, or C3805. A summary of the findings is given in Table 8.10.

Non-human bone:
Unburnt non-human bone was found in C3802 and C3804. Apart from a probably intrusive fragment of long bone (large mammal ?) in C3804, the rest of the non-human material consisted of bird bone. This was classified as domestic fowl on the basis of bone size and morphology (Cohen and Serjeantson 1986). In both cremations most anatomical parts (with the exception of the skull) were represented. No signs of cutmarks could be identified. Both specimens appeared to be of relatively small size and young adult in age according to the epiphyseal stage of the femoral head. The specimen in cremation C3804 had a malaligned healed fracture of the femur. Both specimens were females on the basis of the presence of a thick bone deposit in the medullary cavity of the long bones for eggshell production and because they lacked a spur on the tarso-metatarsus (Driver 1982). No elements of non-human bone could be identified in cremations C3801, C3803 and C3805, although it is possible for cremated small fragments of non-human bone to be overlooked.

Discussion

The total amount of human bone recovered varies considerably in these cremations, ranging from 1168.8g. in C3804 to 52.0g. in C3805 with an average of 560.4g. Considering that the ash portion of cremated human bone cannot be retrieved in archaeological contexts, the quantity of bone recovered in cremation C3802 and C3804 approaches the lower range limit of bone recovered after modern adult cremations (1600-3600g (McKinley 1989). Conversely, the quantity of bone from C3801, C3803 and C3805 is noticeably scarce. The scarcity of bone in C3801 can be largely attributed to post-depositional disturbance and loss rather than to incomplete collection of material at the pyre site. This may also be the case for C3803 and C3805, although specific burial practices involving shallow and superficial cremations may also have resulted in poor recovery.

The bone appears to be extensively fragmented. The vast majority of fragments are not much larger than 10-20mm. and the average maximum fragment size is of approximately 50mm. This is consistent with an average maximum fragment size of 40-50mm, normally recovered from archaeological contexts (McKinley 1989). Varying degrees of fragmentation are to be expected as a result of the cremation process itself: tending, collection of bone especially while hot, separation of bone from pyre debris, post-depositional disturbance, excavation and post-excavation (McKinley 1989). It is therefore difficult to attribute the high fragmentation of this material to purposeful behaviour at the time the cremation took place.

An average of 44% (range 24%-71%) of the bone fragments recovered could be identified on the basis of their morphology; 20-50% of bone is normally identified in cremations from archaeological contexts (McKinley 1989). There is the general tendency in all the cremations for the axial parts to be under-represented compared with appendicular elements. It is suggested that differential representation of anatomical parts may represent selective collection of cremated remains at the pyre site (McKinley 1989). However, in this case there is no compelling evidence for such a practice. It seems that these results could be better explained by the differential preservation of skeletal parts. The bone was accurately collected at the pyre site as witnessed by the presence of some of the small bones from the hands and feet.

The colour (white to tan) indicates that these human remains underwent extensive and uniform oxidation. Longitudinal and transverse cracking is the expected pattern for bone which is burned fresh and fleshed. There is some evidence of differences in the degree of burning according to anatomical parts beyond what is normally expected as a consequence of the differential distribution of tissue and body fat. Shielded surface such as joints are more poorly oxidised than feet and hands which are less protected by soft tissue. The finding of a differential pattern of burning according to anatomical parts can be used to infer the layout of the body during the cremation process. Poor burning of the lower legs, as found in C3802, may indicate that the body was possibly laid out extended with the feet at the periphery of the pyre receiving less heat.

Unburnt bird bone was found in C3802 and C3804. This was identified as domestic fowl. Non-human bone is a common finding in many funerary contexts. It is variously seen as evidence of food offerings, personal possessions, symbols of status or ritual objects. The finding of whole unburnt animals means that they can hardly be part of an occupation layer or meal residues, and implies that they were deliberately included in the grave deposit. Offerings of livestock and, perhaps more significantly, of a young hen, imply the sacrifice of an economically valuable animal with its potential for laying eggs and as a meat source. Mystical significance was attached to birds, in general, and chickens in particular, both being seen as significant for rebirth and fertility in pagan and Christian spirituality. It is possible that both hens were decapitated because the cranial bones were lacking despite the presence of most postcranial bones. Unburnt whole birds in cremation deposits are reported from the site of Spong Hill (Bond 1994) and Birka (Gräslund 1981). Intact unburnt animal bones (especially pig and chicken) are commonly found in richly furnished cremations in the south-east of England in the 1st and 2nd century A.D. (Philpott 1991). The finding of unburnt animal bone in association with vessels is interpreted by Philpott as evidence of the cremation deposit laid out as a meal with several meat courses, a continuation of a Celtic funerary custom.

The examination of the osteological evidence in C3804 is suggestive of a robust individual. Since muscular tone rapidly diminishes with decreasing physical activity, it appears that this individual was physically active in the recent past before his/her death.

Both the severity of fragmentation and the small quantity of material available for study impeded the recognition of pathological modification of the bone in most of the individuals. The process of cremation itself is responsible for fragmentation and surface changes (warping, colour modification, erosion) that can mimic or hide pathological changes (McKinley 1994). Some arthritic changes (lipping, microporosity, osteophytes) were noticed on the vertebrae of C3804. These are common, symptomless changes. They are generally age related but can also have a traumatic origin and possibly reflect minor traumas to the spine caused by excessive strain. A lack of pathological conditions, especially considering the incompleteness and extensive fragmentation of the remains in C3801, C3802, C3803 and C3805, does not signify in itself a healthy individual

On the contrary, there are a number of diseases that kill an individual before skeletal changes can occur, depending on the type of disease and on an individual's capacity to counteract pathological processes. It has been suggested that skeletons that show poor heath may represent the "survivors" i.e. individuals who had the inherent strength to overcome several diseases as opposed to those who did not have a strong enough immune system to survive (Wood *et al.* 1992).

8.2.2 Cremations (2802-2805)

T A Jackman

A total of five contexts contain cremated bone. Four of these each contain the remains of one adult. The remaining cremation, C2802, contained just 5g of bone none of which is identifiable. Four of the cremations are associated with urns (Table 8.16).

Discussion

The longest fragments of bone come from cremation C2803, an ulna 77.1mm long and from C2805, a fragment of fibula 68.3mm in length. C2804 contains a fragment of tibia of 64.6mm and C2801 a fragment from the calcaneus of 36.2mm. The total weight of each cremation is small (Table 8.16), the largest C2805 at 490g.

All the cremations except C2802 have the majority of the long bones, femur, tibia, fibula, humerus, radius and ulna, whilst C2801 and C2805 also have a patella each. Cremations C2803, C2801 and C2805 also have parts of the vertebrae present, the latter of which has fragments of the coccyx. Ribs from C2803, C2805 and C2804 survive, as do fragments of a metacarpal from C2803 and fragments of a foot from C2804. The skull is represented from C2803 including the mandibular second right incisor. Also the maxillary first premolar is present in C2805.

The colour of the bone from all the cremations is a mixture of blue and white with some pieces that are more grey than white. This occurs in cremation C2805. Cremations C2803 and C2804 are mostly white with blue patches on the long bones. Cremation C2801 has more blue bone present, especially on the larger, denser bones. These are the parts of the skeleton one would expect to survive cremation, burial and retrieval. Cremation C2805 is mostly white and grey with very few fragments that are blue in colour. Those that are present come from the ribs and possibly a fragment of pelvis.

All the cremations contain bone that is well calcined and has transverse cracking with degrees of distortion and twisting. Cremations C2803 and C2805 also have bones that have longitudinal cracks.

The varying colours of the bones, the cracking and the distortion are caused by the heat generated during cremation. The heat effects differ with each cremation and are dependent on a range of factors such as climate, type of fuel, position of body relative to the fire, and the amount of fat contained in the body. Although some conclusions about pyre technology can be drawn from the Kempston cremations, it is probably unwise to do so if one considers the small percentage of the skeleton present from each cremation. This may be because token amounts of cremated remains were collected for burial and the pyre was "stirred" during the firing to allow a better flow of oxygen. This would cause the skeleton to break-up, the movement of individual bones around the pyre resulting in misleading information about the relationship of the fire to the body.

Phase	Cremation	Context	Colour	Cracking	Length	Weight	Age
Un phased	2802	1002	Blue, white	Transverse, some distortion		5g	
	2801	1086	Blue, white	Transverse, some distortion	36.2	95g	Adult
	2803	1209	Mostly white, blue patches	Transverse with longitudinal twisting and distortion	77.1	185g	Adult
	2804	1379	White, blue	Transverse	64.6	288g	Adult
	2805	1558	White, grey some blue	Transverse with longitudinal twisting and distortion	68.3	490g	Adult

Table 8.16 Summary table: the cremations from north of Church Road